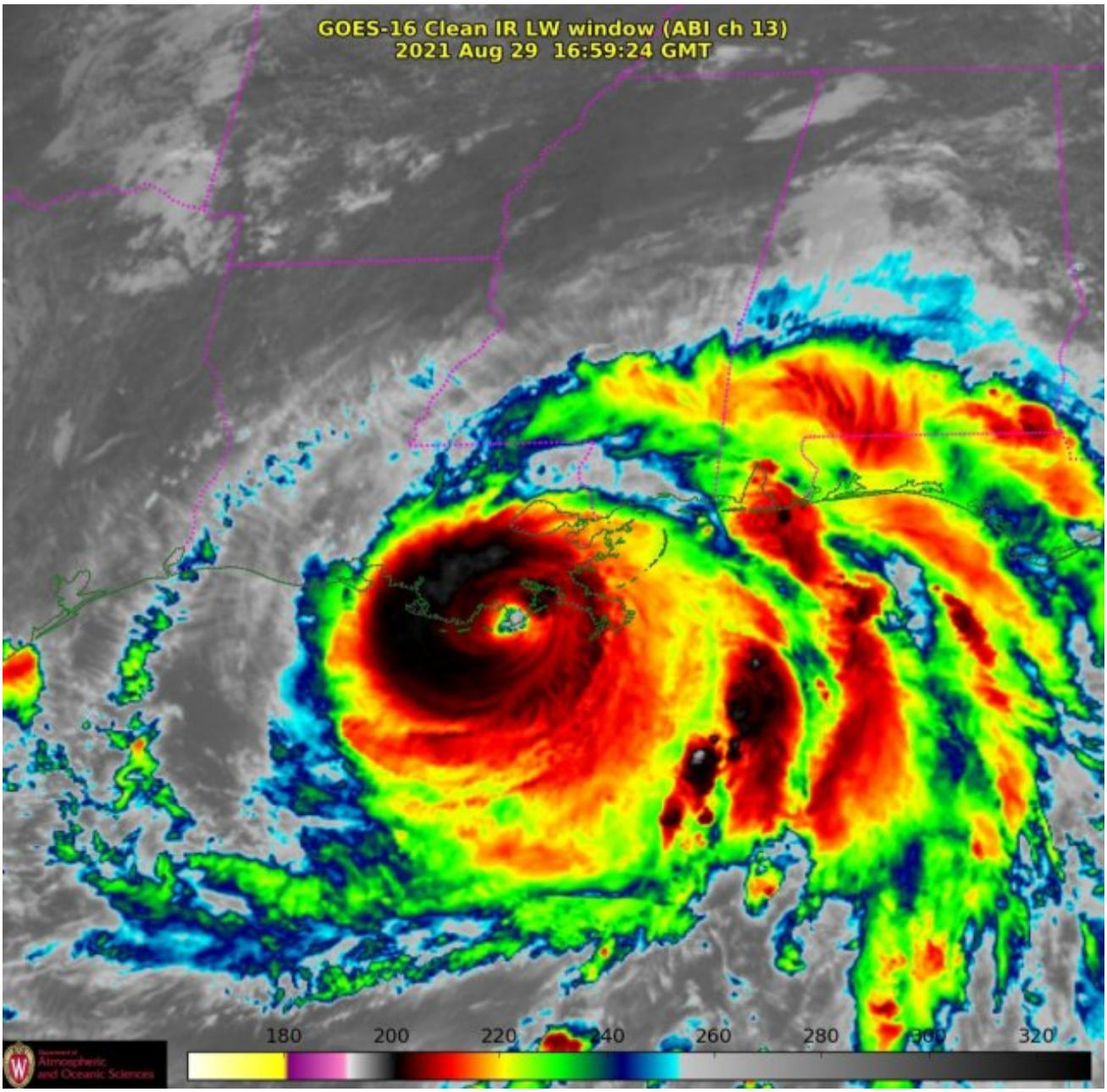
Will Hurricane Ida affect the UK’s weather?

Description

Hurricane Ida has seen winds of up to 150mph and intense rainfall bringing widespread flash flooding to a swathe of America, in what has been the fifth strongest storm to hit the US mainland.

Ida formed over the Caribbean Sea at the end of August, and then moved north westwards becoming a tropical storm. As Ida moved over the Gulf of Mexico it tracked across a deep area of warm water and developed rapidly into a Category 4 Hurricane and made landfall over Louisiana on Sunday evening, UK time. After making landfall Ida started to lose her strength; like all hurricanes, she drew her energy from warm seas. However, although Ida’s winds quickly eased, she has (as forecast) continued to bring a trail of extreme rainfall to the north-eastern United States, notably New York. The heavy rainfall lasts longer and can affect more people than the damaging winds do.



Hurricane Ida has been the fifth strongest hurricane to make landfall on the mainland of the United States.

Impacts in the US from Ida have been severe, with reports of at least three inches of rain falling in New York's Central Park within an hour and Louisiana seeing similarly devastating conditions earlier in the week. One million are reported to be without power, and sadly there have been a high number of fatalities.

Met Office Expert Operational Meteorologist Chris Almond, said: "The sheer amount of rainfall within this warm tropical air saw fairly widespread totals of 150 to 250 millimeters, which fell over a couple of days, and is quite exceptional in itself. But Central Park in New York actually recorded 80 millimeters in just one hour, which is a phenomenal amount of rain. That's nearly over a month's worth of rainfall in just an hour, and almost double the previous record, which was around 50 millimeters in an hour: and

that was only set earlier in August. It has been an exceptional spell of weather for parts of the southern and eastern parts of the United States."

While Ida's affects are still being felt across America, bringing a deluge of rain and continued strong winds, some are now wondering if Ida will travel across the Atlantic and impact on the UK's weather.

In short, no, not directly. But, as is often the case in the North Atlantic hurricane season, the set up in North America can have an influence on the dominant weather we're likely to see in the UK because of the effects it can have on the jet stream, which straddles the Atlantic and drives a lot of the UK's weather.

In recent days, the UK has been under the influence of a high-pressure system (a 'blocking high' set up). This has seen largely benign weather over the UK, with relatively dry conditions, along with spells of sunshine, but more prolonged cloud for some.

According to Met Office models, Ida is set to break up when it enters the Atlantic and is very unlikely to travel across the ocean intact. However, it will have an influence on the position and strength of the jet stream across the Atlantic – currently the jet stream is very weak, but it will strengthen as the remnants of Ida move northeast away from North America. The strength of the jet stream can be determined by the temperatures on either side of the flow, with cool air to the north and warm air to the south. When the temperature contrast is greater, such as now with Ida bringing a lot of warm air to the south, the jet becomes more energised. The direction the jet stream then takes will help determine weather patterns for the UK this weekend, with a more northerly position helping to hold high pressure close to the UK.

Met Office Expert Operational Meteorologist David Oliver said: "Ida has obviously had some significant impacts in the US, but that weather system is not expected to travel across the Atlantic and reach the UK as an active system.

"However, it is common for the hurricane season in North America to play a factor in the weather patterns affecting the UK, and in most cases that's down to its role in shifting the upper air that drives our weather systems.

Hurricanes have a major impact on the transport of heat and moisture from the tropics into the North Atlantic.

David added: "As Ida breaks up, the low-pressure system and warm tropical air associated with it will help to accelerate and shift the jet stream over the Atlantic. The behaviour of the jet stream is complex but overall it will tend to lie to the north of the UK, this helping to hold high pressure close by. So, whilst rain is likely to spread to some northern parts of the UK on Sunday and into Monday, for many places conditions will remain dry and increasingly warm this weekend and into the first half of next week."

A shift toward more widely unsettled weather isn't currently expected until later next week as the high pressure finally gets unseated from its current position close to the UK.

Check the latest Met Office forecast on the Met Office website, app or on social media.

Date Created
September 2021

How will Hurricane Larry influence the UK’s weather?

Description

The hurricane season in the Tropical North Atlantic frequently plays a role in dictating the state of play with the UK’s dominant weather patterns, but with various stories circulating in the media about ex-Hurricane Larry’s influence over the forecast, we thought we’d clear up the current picture from across the Atlantic Ocean.

Hurricane Larry struck North America last week as a Category 1 hurricane and brought widespread disruption to Newfoundland and Greenland before moving out to sea. The breakdown of Larry late on Friday led to some significant uncertainty in the forecasts for the UK, as conditions in the west of the Atlantic often help to drive the weather we see in the UK. It’s this uncertainty that led to some reports of warmer weather to come, but that isn’t the case on this occasion as Larry’s influence on our weather weakens from now on.

Ex-Hurricane Larry’s influence over the UK weather is somewhat confined to helping to keep our current unsettled weather pattern in place and fairly slow moving. The remnants of Larry are now loosely aligned with a low pressure to the south of Greenland and is set to have little impact on the medium and long term forecasts for the UK.

Aidan McGivern gives Monday evening’s Met Office forecast for the UK

As the UK’s current weather pattern develops later in the week, some warmer air will be drawn in from the south, but this will be associated with some thick cloud and, at times, heavy rain. This isn’t linked to the remnants of Larry in the North of the Atlantic.

Met Office Deputy Chief Meteorologist Adam Thornhill said, “One of the main impacts of ex-Hurricane Larry on the UK weather has been the uncertainty it brought to the forecast over the past weekend. Hurricanes that affect North America often play a role in the UK’s weather when they move into the North Atlantic. However, the way Larry transitioned from a Hurricane into a North Atlantic low, means its impacts on the UK’s weather systems were and are limited to holding some of our unsettled weather in place into the middle of this week.

“Ex-Hurricane Larry no longer exists, but the low which has some legacy ‘Larry’ air, has moved to the south of Greenland and is set to have little impact on us in the UK as it continues to lose intensity and move into the Arctic Sea. Although there may be some warmer air moving across the southeast of England through Tuesday and Wednesday, any temperature rise is likely to be subdued with some thick cloud and rain at times. Some sunny spells are most likely on Thursday, where temperatures in the East and Southeast of England may reach the mid-twenties before another band of rain moves east across the UK later Thursday and through Friday.”

The high pressure moving into the south from Thursday could bring temperatures to the low or mid 20s in the southeast where there's the best of the sunshine, but cloud will likely subdue temperatures in other areas before some more unsettled weather moves in from the west.

Get the latest forecast on the Met Office website.

Date Created
September 2021

Met Office science: narrowing the range of climate uncertainty

Description

The United Nations has today (Thursday 16 September, 2021) published a synthesis report on the perils of climate change and the need for urgent climate action.

The report features hard-hitting forewords from both Antonio Guterres – Secretary-General of the United Nations – and Prof Peter Talaas – Secretary-General of the World Meteorological Organization.

The United in Science 2021 report draws heavily on the latest scientific evidence, including pivotal findings from the Met Office.

Obtaining meteorological information from fast-changing regions like the Arctic provides greater granularity on the scale of the changing climate. Pic: Shutterstock

Professor Adam Scaife is one of the key Met Office contributors to the report. He said: “2021 is a vital year for climate change, as decision makers assemble in November in Glasgow for COP26. Everyone knows that many hopes are pinned on the final outcomes from the conference, but before decision makers can begin to agree meaningful action, it is vital for them to have access to the best-available climate data and predictions.”

The Met Office’s contribution to the report has concentrated on two principal areas: monitoring of

global temperature and sea ice; and narrowing the uncertainty about what will happen to the climate in the next few years.

Adam Scaife continued: “The earth’s temperature is continuing to rise and as decision makers continue to decide on future policies to avert the worst outcomes of climate change and stay on a pathway within Paris Agreement limits, they require the best scientific information available.”

In an attempt to understand more about the latest global temperature rises and what will happen over the next five years, Met Office scientists continue to develop capacity in the science of observing and predicting variations in our climate.

For predicting climate in the near term, the Met Office Hadley Centre leads the World Meteorological Organisation’s effort to combine multiyear predictions from the best computer models available. Professor Scaife said: “This synthesis report takes the very latest observations and predictions and gives a stark warning that *temporary* exceedance of the 1.5°C level is quite possible in the next few years and that unless there are immediate, rapid and large-scale reductions in greenhouse gas emissions, limiting *long-term* warming to 1.5°C will be impossible.”

In December 2020, the Met Office and the University of East Anglia Climate Research Unit announced a series of key improvements to their long-running global temperature data set, HadCRUT, which contains data stretching back to 1850.

HadCRUT brings together measurements of near-surface air temperature made at weather stations around the world with measurements of the temperature of the top-most layer of the ocean (or sea-surface temperature). The updates to HadCRUT (now known as HadCRUT5) include:

- updated adjustments to handle the changing biases between different ways of measuring sea-surface temperatures over time;
- A significant increase in the number of weather stations used over land;
- Using statistical methods to extend the data set’s coverage in the early record and in areas that are still data-sparse today, including the rapidly warming Arctic. This provides more accurate estimates of global, hemispheric and regional temperature changes.

John Kennedy of the Met Office Hadley Centre said: “These revisions show slightly more warming in recent times, compared with previous iterations of the data set. The new data set provides decision makers with our best estimate yet of the rate of warming and its uncertainty and also serves as a reminder that the world has warmed considerably since 1850.”

The United in Science 2021 report, the third in a series, is coordinated by the World Meteorological Organization (WMO), with input from the UN Environment Programme (UNEP), the World Health Organization (WHO), the Intergovernmental Panel on Climate Change (IPCC), the Global Carbon Project (GCP), the World Climate Research Programme (WCRP) and the Met Office (UK).

The United in Science report provides details on:

- Greenhouse Gas Concentrations in the Atmosphere (WMO)
- Global greenhouse gas emissions and budgets (Global Carbon Project)
- Emissions Gap (UN Environment Programme)
- Global Climate in 2017-2021 and 2021-2025 (WMO, UK Met Office)

- Highlights of the Intergovernmental Panel on Climate Change Sixth Assessment Report – the Physical Science basis
- Sea level rise and coastal impacts (World Climate Research Programme)
- Heatwaves, widlfires and air pollution (World Health Organization/WMO)

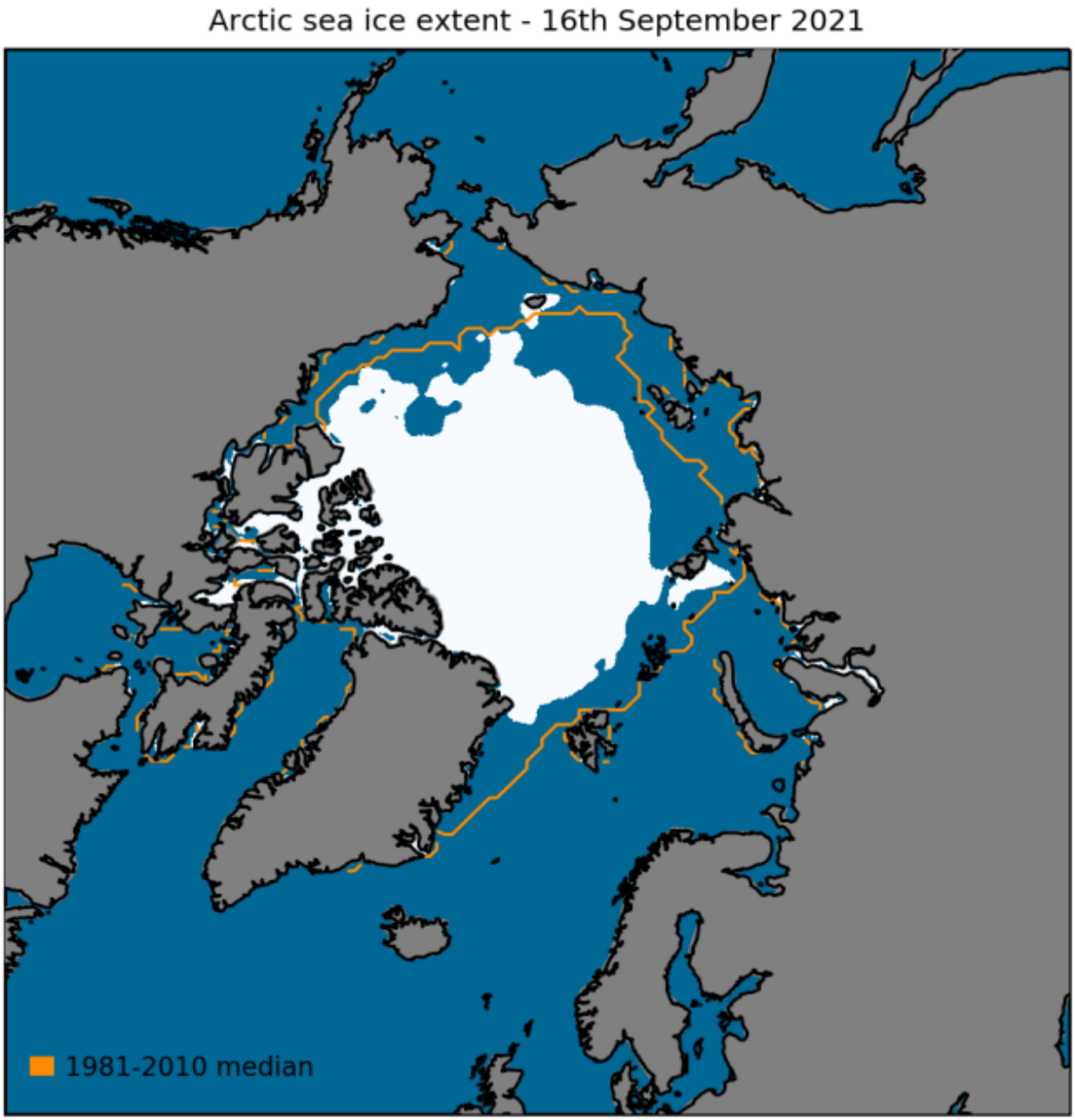
Date Created
September 2021

Arctic sea ice decline continues, with 2021 the 12th lowest summer minimum extent on record

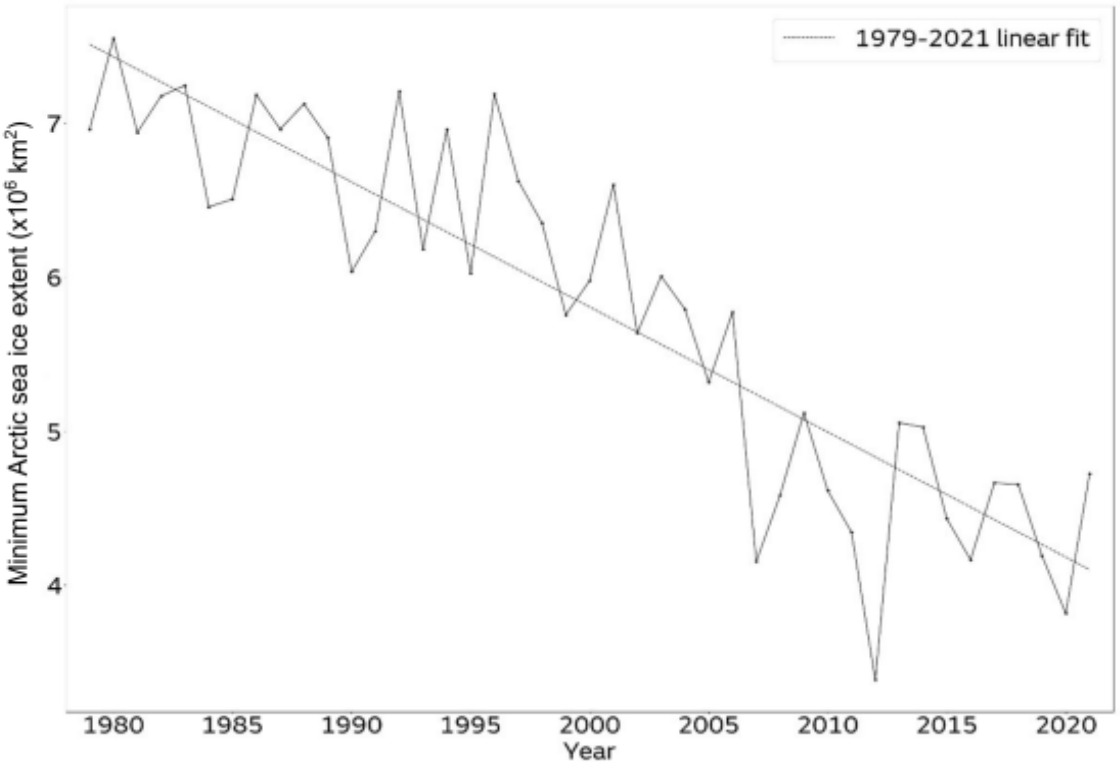
Description

On 16 September 2021, Arctic sea ice reached its annual minimum extent, signifying the end of the summer melting period. According to the National Snow and Ice Data centre (NSIDC), Arctic sea ice extent stood at 4.72 million square kilometres on 16 September, which is the 12th lowest September minimum on record since satellite observations began in 1979.

The extent of Arctic sea ice has on average been declining over the last thirty years, reaching its annual minimum every year in September. Whilst this year is higher than the record low sea ice extent of 3.41 million square kilometres reached in 2012, it is still around 25% lower than the long-term (1981-2010) average of 6.33 million square kilometres.



Arctic summer sea ice extent is naturally influenced by changing weather patterns, such as temperature, cloud cover, summer storms and wind patterns. Whilst this can cause fluctuations in sea ice extent from year to year, when comparing recent satellite observational records there is a clear and significant downward trend.



Manager of the Met Office Polar Climate Group, Ed Blockley, said:“Although this year’s minimum sea ice extent is not record-breaking, it is yet another year that sea ice extent has continued to follow the prevailing long-term trend of decline. We have seen a sustained long-term decline in Arctic sea ice cover over the last 4 decades, which is most pronounced at the summer minimum in September. Although there are year-to-year variations associated with the weather in individual years, we have lost, on average, around 87,000 square km of September sea ice extent each year, an area more than 4 times the size of Wales!

“Sea ice is a significant part of our climate system, and it can be heavily impacted by even minor changes in temperature. We can see these changes in the annual cycle of sea ice melt and growth, where ice is starting to melt earlier in the spring and freeze-up later in the autumn.“As global temperatures continue to increase, the Arctic is likely to heat up faster than the planet due to polar amplification. So it is really important to pay close attention to these broader trends that tell us our climate is changing.”

You can find out more about Arctic sea ice and look out for our upcoming Arctic and Antarctic end of season report here.

Date Created
September 2021